

21 AUG 1981

MEMORANDUM FOR THE RECORD

SUBJECT: Utilities for ODP Computer Centers

REFERENCE: Memo for D/L from D/ODP dtd 3 Aug 81,  
Same Subject

1. Problem:

By referent, the Director of ODP claims that electrical power outages are degrading his computer operations by one third of the time, citing 20 failures in two years. He requests immediate scheduling of all maintenance and repair outside of prime time working hours, and reduction of power failures to no more than one failure per year.

2. Background:

ODP has long been interested in reliable power. It has also been in a dynamic mode requiring major replacement of hardware in GC03 and GC47, expansion into 1D16, expansion of 1D16, second expansion of 1D16, not to mention projects SAFE, CAMS, APARS, etc.

Each hardware upgrade has been accompanied by a major impact of facilities such as power and air conditioning. Wire closets have had to be moved, transformer vaults enlarged, and capacity and reliability enhancing equipment installed all the way from the powerhouse to vaults A, B, and C. Initially, power outages were addressed by installation of generators. This was followed by installation of motor generator sets to provide both isolation and frequency conversion from 60 to 415 Hz. Motor generators were succeeded by solid state uninterruptible power systems with increased capacity required at each step. During this constant evolution process, it has been necessary to work on energized circuits, work with redundant feeders temporarily out of service, and through it all to test both incrementally and by system that which has been built to enhance reliability or keep up with load growth. In order to protect against prolonged power outages, generators have been installed sufficient to run all critical loads including the powerplant and its air conditioning equipment. On top of the above Agency initiated activities, the Virginia Electric and Power Company (VEPCO) has


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been obliged to upgrade its facilities feeding the McLean/CIA area. For the past two years, major construction by VEPCO has had our main power feeders operating at 50% reliability while the entire substation and miles of transmission line has been completely dismantled and is only at this writing being replaced.

To respond affirmatively to the referent, it would be necessary to acknowledge that the majority of interruptions come from outside areas under Agency control. It would be theoretically necessary to perfect the very equipment described above. Of course, if that were possible, there would be no problem. In fact, however, the existence of the equipment to enhance reliability places electro/mechanical devices in an otherwise hard-wired circuit. These devices have a variety of factory tolerances and in combination or individually have a variety of mean time between failure characteristics well short of infinity. When, in spite of all, a failure does occur, and even if a successful switch to bypass is made, not repairing or correcting during "prime time" does not of itself guarantee the absence of a subsequent failure. Conversely, it does guarantee that if a VEPCO failure occurs before repairs are accomplished that ODP and other customers will be directly affected. Also, the efficiency of accomplishing a repair is not expected to be increased given the increased problem of obtaining access, escorts, parts, or even factory technicians who are not dedicated to just CIA plus the supporting electricians or operating engineers who must manipulate switches or valves to produce a necessary effect at the desired time.

3. Conclusion:

The Director of ODP's indication of concern and willingness to assist in the form of resources should be utilized to further strengthen our efforts to approach absolute utility reliability. Given the occasional pervisity of circumstance and equipment involved the D/L should take extreme caution in making guarantees which are beyond a reasonable ability to deliver. Moreover, the D/L should also be careful to retain the right to do what is necessary in the event of a utility problem while extending the courtesy of consultation and coordination as the norm.

  
Deputy Chief, Real Estate and  
Construction Division, OL

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ODP 81-993

03 AUG 1981

10 AUG 1981

MEMORANDUM FOR: Director of Logistics

FROM: Bruce T. Johnson  
Director of Data Processing

SUBJECT: Utilities for ODP Computer Centers

1. Action Requested:

We request that the Office of Logistics take the necessary steps to lower the rate of utility failures to no more than one per year for each of the ODP computer centers. As an immediate measure scheduled maintenance and scheduled repair should be conducted on ODP utilities outside of prime time working hours.

2. Background:


ODP has made a concentrated effort during the last 24 months to increase the time that the ODP facilities are available to our customers. Needless to say, the quality of the utilities that drive the computer centers greatly affects our ability to keep our systems operating. Unfortunately, the number of failures during the last two years suggest that there is a serious problem with the quality of this service.

During this time frame, ODP has experienced 20 failures due to utility outages. Ten of these failures have occurred since 31 March 1981. With each of these failures we have lost an average of four hours of processing. What is even more important, however, is that we have experienced a significant increase in the rate of equipment failure. A recent analysis has shown that for two weeks following an unscheduled power outage, the rate of equipment failure is two to three times the normal rate. When you consider that we had 20 failures in two years, the ODP

computer centers have been operating in degraded mode at best for over one-third of the time because of power failures (20 x 2 weeks divided by 108 weeks). We cannot expect our users to continue to tolerate such a situation. We must have more dependable power, and I earnestly request the Office of Logistics to design utility systems such that we experience no more than one failure per year.

As an immediate measure, I must ask that all scheduled maintenance on ODP utilities be accomplished outside of the hours of 0700-2000, Monday-Friday to avoid the high risk of inadvertently disrupting essential service when maintenance is performed during the prime shift.

Undoubtedly there will be resource issues raised by this request. We will be happy to work with you to resolve these issues and to obtain the necessary funds.

*fr*  Bruce T. Johnson

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